



DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES (RER)
BOARD AND CODE ADMINISTRATION DIVISION

NOTICE OF ACCEPTANCE (NOA)

MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION

11805 SW 26 Street, Room 208
Miami, Florida 33175-2474
T (786)315-2590 F (786) 31525-99

www.miamidade.gov/economy

Siplast

1111 Highway 67 South
Arkadelphia, AR 71923

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County RER - Product Control Section to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Section (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. RER reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein, and has been designed to comply with the Florida Building Code including the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: Siplast Modified Bitumen Roof Systems over LWC Decks.

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA revises NOA No. 12-1220.02 and consists of pages 1 through 33.
The submitted documentation was reviewed by Alex Tigera.



NOA No.: 13-1113.03
Expiration Date: 04/14/18
Approval Date: 11/05/15
Page 1 of 33

ROOFING SYSTEM APPROVAL

Category: Roofing
Sub-Category: Modified Bitumen
Deck Type: Lightweight Concrete
Material: SBS
Maximum Design Pressure: -317.5 psf

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

TABLE 1

<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>
Parabase	3' x 108'	ASTM D4601	Asphalt coated fiberglass base sheet for mechanically fastened applications.
Parabase FS	3' x 108'	ASTM D4601	Asphalt coated fiberglass base sheet with a polyolefin back surfacing for mechanically fastened applications.
Parabase Plus	3.28' x 102.3'; 28 lbs./sq.	ASTM D4601	Elastomeric asphalt coated base sheet.
Paradiene 20	3.28' x 50'; 90 lbs./sq.	ASTM D6163	Asphalt elastomer sheet with random fiberglass mat reinforcement used as the base ply of a Paradiene 20/30 system.
Paradiene 20 HT	3.28' x 50'; 90 lbs./sq.	ASTM D6163	Asphalt elastomer sheet with fiberglass scrim reinforcement for use as a base ply of a Paradiene 20/30 system.
Paradiene 20 EG	3.28' x 33.5'; 90 lbs./sq.	ASTM D6163	Heavy duty asphalt elastomer sheet with fiberglass scrim reinforcement for use as a base ply in Paradiene systems.
Paradiene 20 HV	3.28' x 33.5'; 90 lbs./sq.	ASTM D6163	Heavy duty asphalt elastomer sheet with random fiberglass mat reinforcement used as a base ply of a Paradiene 20/30 system.
Paradiene 20 PR	3.28' x 50'; 55 lbs./sq.	ASTM D6164	Asphalt elastomer sheet with polyester fiberglass scrim composite reinforcement used as the top ply of a Paradiene 20/20 PR system having a gravel surfacing. Has additional puncture resistance.
Paradiene 20 TG	3.28' x 33.5'; 70 lbs./sq.	ASTM D6163	Asphalt elastomer sheet with random fiberglass reinforcement used as the base ply of a Paradiene 20/30 TG Series system.
Paradiene 20 TG F	3.28' x 33.5'; 70 lbs./sq.	ASTM D6163	Asphalt elastomer sheet with random fiberglass reinforcement used as the base ply of a Paradiene 20/30 TG Series system.
Paradiene 20 HT TG	3.28' x 33.5'; 70 lbs./sq.	ASTM D6163	Asphalt elastomer sheet with fiberglass scrim reinforcement for use as a base ply of a Paradiene 20/30 system.
Paradiene 20 HT TG F	3.28' x 33.5'; 70 lbs./sq.	ASTM D6163	Asphalt elastomer sheet with fiberglass scrim reinforcement for use as a base ply of a Paradiene 20/30 system.

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

TABLE 1

<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>
Paradiene 20 EG TG	3.28' x 33.5'; 100 lbs./sq.	ASTM D6163	Heavy duty asphalt elastomer sheet with fiberglass scrim reinforced for use as a base ply in Paradiene 20TG/30TG systems.
Paradiene 20 HV TG	3.28' x 33.5'; 100 lbs./sq.	ASTM D6163	Heavy duty asphalt elastomer sheet with random fiberglass mat reinforcement used as a base ply of a Paradiene 20TG/30TG system.
Paradiene 20 PR TG	3.28' x 33.5'; 96 lbs./sq.	ASTM D6164	High performance SBS modified bitumen finish ply designed for use in gravel surfaced. Used as a surface ply of a Paradiene 20/20TG system.
Paradiene 20 TS	3.28' x 33.5'; 76 lbs./sq.	ASTM D6163	High performance, semi adhered SBS modified bitumen with random fiberglass mat reinforcement used as a base ply of Paradiene 20/30 systems.
Paradiene 20 TS F	3.28' x 33.5'; 76 lbs./sq.	ASTM D6163	High performance, semi adhered SBS modified bitumen with random fiberglass mat reinforcement used as a base ply of Paradiene 20/30 systems.
Paradiene 30 FR Paradiene 30 CR FR	3.28' x 33.5'; 85 lbs./sq.	ASTM D6163	Asphalt elastomer sheet with mineral surfacing and random glass mat reinforcement, for use as the top ply of a Paradiene 20/30 system.
Paradiene 30 HT FR	3.28' x 33.5'; 87 lbs./sq.	ASTM D6163	Fire-rated asphalt elastomer sheet with mineral surfacing and fiberglass scrim reinforcement for use as the top ply of a Paradiene 20/30 FR system.
Paradiene 30 MW FR	3.28' x 33.5'; 87 lbs./sq.	ASTM D6163	Fire rated asphalt elastomer sheet with mineral surfacing and ultra high tensile fiberglass reinforcement for use as the top ply of a Paradiene 20/30 FR system.
Paradiene 30 FR TG Paradiene 30 CR FR TG	3.28' x 25.25'; 80 lbs./sq.	ASTM D6163	Fire rated asphalt elastomer sheet with mineral surfacing and random fiberglass mat reinforcement for use as the top ply sheet of a Paradiene 20/30 TG Series system.
Paradiene 30 FR TG Eco- Activ	3.28' x 25.25'; 80 lbs./sq.	ASTM D6163	Fire rated asphalt elastomer sheet with mineral surfacing and fiberglass scrim reinforcement for use as the top ply of a Paradiene TG Series system.
Paradiene 30 HT CR FR TG	3.28' x 25.25'; 80 lbs./sq.	ASTM D6163	Fire rated asphalt elastomer sheet with mineral surfacing and fiberglass scrim reinforcement for use as the top ply of a Paradiene TG Series system.
Paradiene 30 HT FR TG	3.28' x 25.25'; 80 lbs./sq.	ASTM D6163	Fire rated asphalt elastomer sheet with mineral surfacing and fiberglass scrim reinforcement for use as the top ply of a Paradiene TG Series system.

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

TABLE 1

<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>
Paradiene 40 CR FR	3.28' x 26'; 115 lbs./sq.	ASTM D6163	Fire rated asphalt elastomer sheet with mineral surfacing, glass mat/glass scrim reinforced.
Paradiene 40 FR Eco-Activ	3.28' x 26'; 115 lbs./sq.	ASTM D6163	Fire rated asphalt elastomer sheet with mineral surfacing, glass mat/glass scrim reinforced.
Paradiene 40 FR	3.28' x 26'; 115 lbs./sq.	ASTM D6163	Fire rated asphalt elastomer sheet with mineral surfacing, glass mat/glass scrim reinforced.
Paradiene 40 FR TG	3.28' x 26'; 115 lbs./sq.	ASTM D6163	Fire rated asphalt elastomer sheet with mineral surfacing, glass mat/glass scrim reinforced.
Paradiene 40 CR FR TG	3.28' x 26'; 115 lbs./sq.	ASTM D6163	Fire rated asphalt elastomer sheet with mineral surfacing, glass mat/glass scrim reinforced.
Paradiene 40 FR TG Eco-Activ	3.28' x 26'; 115 lbs./sq.	ASTM D6163	Fire rated asphalt elastomer sheet with mineral surfacing, glass mat/glass scrim reinforced.
Parafor 50 LT	3.28' x 17.5'; 114 lbs./sq.	ASTM D6164	Heavy duty asphalt elastomer sheet with mineral surfacing, polyester mat scrim reinforced.
Parafor 50 TG	3.28' x 17.5'; 114 lbs./sq.	ASTM D6164	Heavy duty asphalt elastomer sheet with mineral surfacing, polyester mat scrim reinforced.
IREX 40	3.28' x 34'; 89 lbs./sq.	ASTM D6163	High-melt asphalt sheet with random fiberglass mat reinforcement for use as the base ply sheet for a Veral system.
IREX HT	3.28' x 34'; 89 lbs./sq.	ASTM D6163	High-melt asphalt sheet with fiberglass scrim reinforcement for use as a base ply sheet for the Veral system.
Veral Aluminum	3.28' x 33.5'; 90 lbs./sq.	ASTM D6298	Aluminum clad asphalt elastomer sheet with woven fiberglass reinforcement for use as the top ply sheet of a Veral system.
Veral Copper	3.28' x 33.5'; 105 lbs./sq.	ASTM D6298	Copper clad asphalt elastomer sheet with fiberglass scrim reinforcement for use as the top ply of a Veral system.
PA 311/ 311 M/ 311 LS Adhesives	5 or 55 gal.	ASTM D4479	Blend of adhesive asphalts and quick-drying solvents.
PA 828 Flashing Cement	5 gal.	ASTM D4586	Flashing Cement
PA 1021 Plastic Cement	5 gal.	ASTM D4586	Asphalt cutback reinforced general purpose cement with non-asbestos fibers.
PA 1125 Asphalt Primer	5 or 55 gal.	ASTM D41	Asphalt primer.
PC – 227	5 or 55 gal	ASTM D6083	Elastomeric roof coating.

APPROVED INSULATIONS:

TABLE 2

<u>Product Name</u>	<u>Product Description</u>	<u>Manufacturer</u> <u>(With Current NOA)</u>
H-Shield	Polyisocyanurate Foam Insulation.	Hunter Panels LLC
DensDeck	Water resistant gypsum	G-P Gypsum Corp.
DuraBoard	Expanded Mineral Fiber	Johns Manville
SECUROCK Gypsum-Fiber Roof Board	Water resistant recycled cellulose and synthetic gypsum	US Gypsum Corporation



APPROVED FASTENERS:**TABLE 3**

<u>Fastener Number</u>	<u>Product Name</u>	<u>Product Description</u>	<u>Dimensions</u>	<u>Manufacturer (With Current NOA)</u>
1.	NVS Base Sheet Fastener	Galvanized steel base ply fastener for lightweight concrete deck	N/A	Siplast, Inc.
2.	Zono-tite Base Sheet Fastener	Galvanized steel base ply fastener for lightweight concrete deck	N/A	Siplast, Inc.
3.	Base Sheet Disc	Galvalume steel base ply stress plate for lightweight concrete deck	2-3/4" Round	Siplast, Inc.
4.	FM-30, FM-45, FM-60, FM-90 Fasteners	Base ply fastening systems for lightweight concrete decks.	N/A	ES Products, Inc.
5.	CR Base Sheet Fastener	Galvanized steel base ply fastener for lightweight concrete deck		OMG
6.	CR Base Sheet Disc	Galvalume steel base ply stress plate for lightweight concrete deck	2-3/4" Round	OMG
7.	Olympic XHD Screws	Extra Heavy Duty Fastener for Steel and Wood Decks	N/A	OMG
8.	Olympic Base Sheet Disc	Barbed Steel Plates	2-3/4" Round	OMG
9.	Parafast XHD Screws	Extra Heavy Duty Fastener for Steel and Wood Decks	N/A	Siplast, Inc.
10.	Parafast Base Sheet Disc	Barbed Steel Plates	2-3/4"	Siplast, Inc.

EVIDENCE SUBMITTED

<u>Test Agency/Identifier</u>	<u>Name</u>	<u>Report</u>	<u>Date</u>
Factory Mutual Research Corp.	FM 4470	J.I. 2Y1A1.AM	04/15/96
	FM 4470	J.I. 3Z3A7.AM	04/12/96
	FM 4454	3005387	04/26/00
	FM 4454	3008210	04/10/01
	FM 4454	3011768	02/14/02
	FM 4454	3018480	11/10/03
	FM 4470	3026749	07/27/06
	FM 4470	3023458	07/18/06
	FM 4470	3014692	08/05/03
Underwriters Laboratories, Inc.	UL 790	R10630	03/11/13
Trinity-ERD	TAS 114	#4701.02.96-1	02/28/96
	TAS 114	#4701.09.96-1	08/22/96
	TAS 117	C8500SC.11.07	11/30/07
IRT Consulting of S. Florida, Inc.	TAS 114	00026	10/28/00
Atlantic & Caribbean Roof Consulting, LLC	TAS 114-J	05-003	03/14/05
	TAS 114-J	07-012	04/02/07
PRI Construction Materials Technologies LLC	ASTM D6163	SRI-037-02-01	11/15/12
	ASTM D6163	SRI-039-02-01	11/20/12
	ASTM D6164	SRI-041-02-01	11/15/12
	ASTM D6163	SRI-042-02-01	11/16/12
	ASTM D6163	SRI-042-02-02	11/18/12
	ASTM D5147/D6163	SRI-043-02-01	11/15/12
	ASTM D5147/D6164	SRI-044-02-01	12/07/12
	ASTM D5147/D6163	SRI-045-02-01	12/10/12
	ASTM D5147/D6163	SRI-045-02-03	11/18/12
	ASTM D5147/D6163	SRI-046-02-01	11/16/12
	ASTM D6164	SRI-047-02-01	12/07/12
	ASTM D6298	SRI-048-02-01	01/11/13
	ASTM D4601	SRI-049-02-01	11/13/12
	ASTM D4601	SRI-050-02-01	11/12/12
	ASTM D4601	SRI-051-02-01	11/12/12
	ASTM D 1876	SRI-026-02-01	09/16/11
	TAS 114 App J	SRI-025-02-04	06/10/11
	TAS 114 App D	SRI-059-02-01	05/19/13
	TAS 114 App D	SRI-058-02-01	05/19/13
	TAS 114 App D	SRI-059-02-02	05/19/13

APPROVED ASSEMBLIES:

Membrane Type:	SBS/SBS Foil
Deck Type 4I:	Lightweight Concrete, Insulated
Deck Description:	Lightweight Insulating Concrete, minimum 160 psi Elastizell
System Type A(1):	Insulation adhered with approved asphalt or adhesive.

All General and System Limitations apply.

<u>Insulation Base Layer:</u>	<u>Insulation Fasteners</u> <u>Table 3</u>	<u>Fastener</u> <u>Density/ft²</u>
H-Shield Minimum: 1.5" thick	N/A	N/A
<u>Insulation Top Layer:</u>	<u>Insulation Fasteners</u> <u>Table 3</u>	<u>Fastener</u> <u>Density/ft²</u>
DensDeck Minimum 1/4" thick	N/A	N/A
DuraBoard Minimum 3/4" thick	N/A	N/A

Note: All insulation shall be adhered to the deck with OlyBond 500 Adhesive Fastener applied in continuous 3/4 to 1 in. ribbons spaced 12 in. o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels used as a top layer shall be placed with the polyisocyanurate side facing down.

Base Sheet:	Paradiene 20 TG, Paradiene 20 HT TG or Paradiene 20 EG TG torch adhered or Paradiene 20, Paradiene 20 HT, Paradiene 20 EG, Paradiene 20 HV, IREX 40 or IREX HT hot asphalt applied at an application rate of 20-40 lbs./sq. or adhered with Siplast PA-311 Cold Adhesive or PA-311 M Cold adhesive at a rate of 1.5-2 gal/sq.
Membrane:	Paradiene 30 FR, Paradiene 30 HT FR, Paradiene 30 FR TG, Paradiene 30 HT TG, Paradiene 30 HT FR TG, Paradiene 40 FR, Veral Aluminum, Veral Copper or Parafor 50 LT adhered to the base sheet with hot asphalt at an application rate of 20-40 lbs./sq. or Siplast PA-311 Cold Adhesive or PA-311 M Cold Adhesive at a rate of 1.5-2 gal/sq; or torch adhered (if torch grade membrane is used).

Note: Refer to manufacturer's specifications for specific application requirements.



Surfacing:

Optional when granular surfaced membranes are used Required with non-granular surfaced membranes. Install one of the following:

1. 400 lbs./sq. gravel in a flood coat of PA-311 or PA-311 M adhesive at an application rate of 3 gal./sq.
2. 400 lbs./sq. gravel in a flood coat of asphalt applied at a rate of 60 lbs./sq.

Maximum Design Pressure:

-82.5 psf with PA-311 M adhesive over DuraBoard as Top Layer.

(See General Limitation #9)

-112.5 psf with hot asphalt or PA-311 adhesive over DuraBoard as Top Layer.

(See General Limitation #9)

-157.5 psf with any adhesive listed above over DensDeck as Top Layer.

(See General Limitation #9)

Membrane Type: SBS/SBS Foil
Deck Type 4I: Lightweight Concrete, Insulated
Deck Description: Lightweight Insulating Concrete, minimum 160 psi Elastizell
System Type A(2): Insulation adhered with approved asphalt or adhesive.

All General and System Limitations apply.

One or more layers of any of the following insulations:

<u>Insulation Base Layer:</u>	<u>Insulation Fasteners</u> <u>Table 3</u>	<u>Fastener</u> <u>Density/ft²</u>
H-Shield Minimum: 1.5" thick	N/A	N/A
Insulation Top Layer: Securock Minimum ¼" thick	N/A	N/A

Note: All insulation shall be adhered to the deck with OlyBond 500 Adhesive Fastener applied in continuous ¾ to 1 in. ribbons spaced 12 in. o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels used as a top layer shall be placed with the polyisocyanurate side facing down.

Base Sheet: Paradiene 20, 20 HT, 20 HV or 20 EG adhered in full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq or with PA 311/311M/311LS cold adhesive applied at a rate of 1.5-2.5 gal/square or Paradiene 20 TG, 20 HT TG or 20 EG TG, adhered by torch.

Membrane: Paradiene 30 FR, 30 CR FR, or 30 HT FR adhered in approved mopping asphalt at an application rate of 20-40 lbs./sq. or PA 311/311M/311 LS adhesive at a rate of 1.5-2 gal/sq. or Paradiene 30 FR TG, 30 CR FR TG, 30 HT FR TG, Parafor 50 TG, Veral Aluminum or Veral Copper adhered by torch.

Note: Refer to manufacturer's specifications for specific application requirements.

Surfacing: Optional when granular surfaced membranes are used Required with non-granular surfaced membranes. Install one of the following:

1. 400 lbs./sq. gravel in a flood coat of PA-311 or PA-311 M adhesive at an application rate of 3 gal./sq.
2. 400 lbs./sq. gravel in a flood coat of asphalt applied at a rate of 60 lbs./sq.

Maximum Design Pressure: -225 psf (See General Limitation #9)



Membrane Type: SBS

Deck Type 4I: Lightweight Concrete, Insulated

Deck Description: Cellular or Aggregate Lightweight Concrete

System Type E(1): Base sheet mechanically fastened.

Deck Types: 18-22 ga steel deck shall be secured 6" o.c. to structural supports spaced a maximum of 5 ft on centers with 3/8" puddle welds and washers. Deck was washed with distilled vinegar. Insulperm insulation panels shall be placed in a minimum 1/8" slurry-coat of Insulcel Lightweight insulating concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2" topcoat cast of Insulcel Lightweight or ZIC (1:4) insulating concrete.
(Maximum Design Pressure –75 psf; See General Limitation #7)
 Or
 Minimum 24 ga. Wheeling Tensilvent 125 steel deck shall be secured 3-3/4" o.c. to structural supports spaced a maximum of 5 ft on centers with 3/8" puddle welds and washers. Deck was washed with distilled vinegar. Insulperm insulation panels shall be placed in a minimum 1/8" slurry-coat of Insulcel Lightweight insulating concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2" topcoat cast of Insulcel Lightweight insulating concrete or ZIC (1:4) insulating concrete.
(Maximum Design Pressure –67.5 psf; See General Limitation #7)
 Or
 18-22 ga steel deck shall be secured 6" o.c. or minimum 24 ga. Wheeling Tensilvent 125 steel deck shall be secured 3-3/4" o.c. to structural supports spaced a maximum of 5 ft on centers with 3/8" puddle welds and washers. Deck was washed with distilled vinegar. Insulperm insulation panels shall be placed in a minimum 1/8" slurry-coat of ZIC (1:4) insulating concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2" topcoat cast of ZIC (1:4) insulating concrete.
(Maximum Design Pressure –60 psf; See General Limitation #7)

All General and System limitations apply.

Base Sheet: One ply of Parabase, Parabase FS or Parabase Plus mechanically fastened as detailed below:

Fastening: Fasten base sheet with FM-90, Olympic Base Sheet Fasteners, or Zonotite Fasteners on a 3" side lap fastened 7" o.c. on lap and three equally spaced rows 10" o.c. in the field.

Ply Sheet: Paradiene 20 TG, 20 TG F, 20 HV TG, 20 HT TG or 20 EG TG adhered by torch or Paradiene 20, 20 HT, 20 HV or 20 EG adhered with approved mopping asphalt at an application rate of 20-40 lbs./sq. or with PA 311/311M adhesive at a rate of 1.5-2 gal/sq..

Membrane: Paradiene 20 PR, 30 FR, 30 CR FR, 30 HT FR, 30 MW FR, 40 FR or Parafor 50 LT adhered with approved mopping asphalt at an application rate of 20-40 lbs./sq. or PA 311/311M adhesive at a rate of 1.5-2 gal/sq. or Paradiene 20 PR TG, 30 FR TG, 30 CR FR TG, 30 HT FR TG or Parafor 50 TG adhered by torch

Note: See manufacturer's specifications for specific application requirements.

Surfacing: Optional when granular surfaced membranes are used Required with non-granular surfaced membranes. Install one of the following:

1. 400 lbs./sq. gravel in a flood coat of PA-311 or PA-311 M adhesive at an application rate of 3 gal./sq.
2. 400 lbs./sq. gravel in a flood coat of asphalt applied at a rate of 60 lbs./sq.

**Maximum Design
Pressure**

See Deck Type Options Above



Membrane Type:	SBS Foil
Deck Type 4I:	Lightweight Concrete, Insulated
Deck Description:	Cellular or Aggregate Lightweight Concrete
System Type E(2):	Base sheet mechanically fastened.
Deck Types:	<p>18-22 ga steel deck shall be secured 6" o.c. to structural supports spaced a maximum of 5 ft on centers with 3/8" puddle welds and washers. Deck was washed with distilled vinegar. Insulperm insulation panels shall be placed in a minimum 1/8" slurry-coat of Insulcel Lightweight insulating concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2" topcoat cast of Insulcel Lightweight or ZIC (1:4) insulating concrete.</p> <p>(Maximum Design Pressure –75 psf; See General Limitation #7)</p> <p>Or</p> <p>Minimum 24 ga. Wheeling Tensilvent 125 steel deck shall be secured 3-3/4" o.c. to structural supports spaced a maximum of 5 ft on centers with 3/8" puddle welds and washers. Deck was washed with distilled vinegar. Insulperm insulation panels shall be placed in a minimum 1/8" slurry-coat of Insulcel Lightweight insulating concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2" topcoat cast of Insulcel Lightweight insulating concrete or ZIC (1:4) insulating concrete.</p> <p>(Maximum Design Pressure –67.5 psf; See General Limitation #7)</p> <p>Or</p> <p>18-22 ga steel deck shall be secured 6" o.c. or minimum 24 ga. Wheeling Tensilvent 125 steel deck shall be secured 3-3/4" o.c. to structural supports spaced a maximum of 5 ft on centers with 3/8" puddle welds and washers. Deck was washed with distilled vinegar. Insulperm insulation panels shall be placed in a minimum 1/8" slurry-coat of ZIC (1:4) insulating concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2" topcoat cast of ZIC (1:4) insulating concrete.</p> <p>(Maximum Design Pressure –60 psf; See General Limitation #7)</p>

All General and System limitations apply.

Base Sheet:	One ply of Parabase, Parabase FS or Parabase Plus mechanically fastened as detailed below:
Fastening:	Fasten base sheet with FM 90, Olympic Base Sheet Fasteners, or Zonotite Fasteners on a 3" side lap fastened 7" o.c. on lap and three equally spaced rows 10" o.c. in the field.
Ply Sheet:	<p>Paradiene 20 TG, 20 TG F, 20 HV TG, 20 HT TG, or 20 EG TG adhered by torch or Paradiene 20, 20 HT, 20 HV or 20 EG, adhered with approved mopping asphalt at an application rate of 20-25 lbs./sq.</p> <p>or</p> <p>IREX 40 or IREX HT adhered in approved mopping asphalt at an application rate of 20-40 lbs./sq. or by torch.</p>
Membrane:	Veral Aluminum or Veral Copper adhered in approved mopping asphalt at an application rate of 20-40 lbs./sq. or by torch

Note: **Refer to manufacturer's specifications for specific application requirements.**

Surfacing: Optional when granular surfaced membranes are used Required with non-granular surfaced membranes. Install one of the following:

1. 400 lbs./sq. gravel in a flood coat of PA-311 or PA-311 M adhesive at an application rate of 3 gal./sq.
2. 400 lbs./sq. gravel in a flood coat of asphalt applied at a rate of 60 lbs./sq.

**Maximum Design
Pressure**

See Deck Type Options Above



Membrane Type: SBS/SBS Foil

Deck Type 4I: Lightweight Concrete, Insulated

Deck Description: Cellular or Aggregate Lightweight Concrete

System Type E(3): Base sheet mechanically fastened.

Deck Types: Minimum 24 ga. Wheeling Tensilvent 125 steel deck shall be secured 6" o.c. to structural supports spaced a maximum of 6 ft on centers with 3/8" puddle welds and washers. Insulperm insulation panels shall be placed in a minimum 1/8" slurry-coat of Insulcel Lightweight Insulating concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2" topcoat cast of Insulcel Lightweight insulating concrete or ZIC (1:4) insulating concrete.

All General and System limitations apply.

Base Sheet: One ply of Parabase, Parabase FS or Parabase Plus mechanically fastened as detailed below:

Fastening: Fasten base sheet with FM-90, Olympic Base Sheet Fasteners, or Zonotite Fasteners on a 3" side lap fastened 11" o.c. on lap and three equally spaced rows 11" o.c. in the field.

Ply Sheet: Paradiene 20 TG, 20 TG F, 20 HV TG, 20 HT TG or 20 EG TG adhered by torch or Paradiene 20, 20 HT, 20 HV or 20 EG adhered with approved mopping asphalt at an application rate of 20-40 lbs./sq. or with PA 311/311M adhesive at a rate of 1.5-2 gal/sq.
Or
(For Veral system) IREX 40 or IREX HT adhered in approved mopping asphalt at an application rate of 20-40 lbs./sq. or by torch.

Membrane: Paradiene 20 PR, 30 FR, 30 CR FR, 30 HT FR, 30 MW FR, 40 FR or Parafor 50 LT adhered with approved mopping asphalt at an application rate of 20-40 lbs./sq. or PA 311/311C adhesive at a rate of 1.5-2 gal/sq. or Paradiene 20 PR TG, 30 FR TG, 30 CR FR TG, 30 HT FR TG or Parafor 50 TG adhered by torch
Or
Veral Aluminum or Veral Copper adhered in approved mopping asphalt at an application rate of 20-40 lbs./sq. or by torch

Note: See manufacturer's specifications for specific application requirements.

Surfacing: Optional when granular surfaced membranes are used Required with non-granular surfaced membranes. Install one of the following:

1. 400 lbs./sq. gravel in a flood coat of PA-311 or PA-311 M adhesive at an application rate of 3 gal./sq.
2. 400 lbs./sq. gravel in a flood coat of asphalt applied at a rate of 60 lbs./sq.

Maximum Design Pressure -45 psf (See General Limitation #7)



Membrane Type: SBS/SBS Foil
Deck Type 4I: Lightweight Concrete, Insulated
Deck Description: NVS Lightweight Concrete
System Type E(4): Base sheet mechanically fastened.

All General and System limitations apply.

Base Sheet: One ply of Parabase, Parabase FS or Parabase Plus mechanically attached using ES Products FM-45 Fasteners and FM-30 plates, NVS Base Sheet Fasteners or FM 75 spaced 7½" o.c. in the 4" wide side lap and 10" o.c. in two equally spaced and staggered rows in the field of the sheets.

Or

Parabase, Parabase FS or Parabase Plus mechanically attached using 1.2" long CR Base Felt Fasteners and Discs or NVS Base Sheet Fasteners and Discs spaced 7½" o.c. in the 4" wide side lap and 10" o.c. in two equally spaced and staggered rows in the field of the sheets

Ply Sheet: Paradiene 20 TG, 20 TG F, 20 HV TG, 20 HT TG or 20 EG TG adhered by torch or Paradiene 20, 20 HT, 20 HV or 20 EG adhered with approved mopping asphalt at an application rate of 20-40 lbs./sq. or with PA 311/311C adhesive at a rate of 1.5-2 gal/sq.

Or

(For Veral System) IREX 40 or IREX HT adhered in approved mopping asphalt at an application rate of 20-40 lbs./sq. or by torch.

Membrane: Paradiene 20 PR, 30 FR, 30 CR FR, 30 HT FR, 30 MW FR, 40 FR or Parafor 50 LT adhered with approved mopping asphalt at an application rate of 20-40 lbs./sq. or PA 311/311M adhesive at a rate of 1.5-2 gal/sq. or Paradiene 20 PR TG, 30 FR TG, 30 CR FR TG or 30 HT FR TG adhered by torch.

Or

Veral Aluminum or Veral Copper adhered in approved mopping asphalt at an application rate of 20-40 lbs./sq. or by torch.

Note: **Refer to manufacturer's specifications for specific application requirements.**

Surfacing: Optional when granular surfaced membranes are used Required with non-granular surfaced membranes. Install one of the following:

1. 400 lbs./sq. gravel in a flood coat of PA-311 or PA-311 M adhesive at an application rate of 3 gal./sq.
2. 400 lbs./sq. gravel in a flood coat of asphalt applied at a rate of 60 lbs./sq.

Maximum Design Pressure: -45 psf (See General Limitation #7)

Membrane Type: SBS/SBS Foil
Deck Type 4I: Lightweight Concrete, Insulated
Deck Description: Zonocel or ZIC Lightweight Concrete
System Type E(5): Base sheet mechanically fastened.

All General and System limitations apply.

Base Sheet: One ply of Parabase, Parabase FS or Parabase Plus mechanically attached using FM-60 with FM 30 bearing stress plate, FM 90, or Zono-tite Base Sheet Fasteners spaced 7½" o.c. in the 4" wide side lap and 10" o.c. in two equally spaced and staggered rows in the field of the sheets

Or

Parabase, Parabase FS or Parabase Plus mechanically attached using 1¾" long CR Base Felt Fasteners and Discs or Zono-tite Base Sheet Fasteners and Discs spaced 7½" o.c. in the 4" wide side lap and 10" o.c. in two equally spaced and staggered rows in the field of the sheets

Ply Sheet: Paradiene 20 TG, 20 TG F, 20 HV TG, 20 HT TG or 20 EG TG adhered by torch or Paradiene 20, 20 HT, 20 HV or 20 EG adhered with approved mopping asphalt at an application rate of 20-40 lbs./sq. or PA 311/311 M at a rate of 1.5-2 gal/sq.

Or

(For Veral system) IREX 40 or IREX HT adhered in approved mopping asphalt at an application rate of 20-40 lbs./sq. or by torch.

Membrane: Paradiene 20 PR, 30 FR, 30 CR FR, 30 HT FR, 30 MW FR, 40 FR or Parafor 50 LT adhered with approved mopping asphalt at an application rate of 20-40 lbs./sq. or PA 311/311M adhesive at a rate of 1.5-2 gal/sq. or Paradiene 20 PR TG, 30 FR TG, 30 CR FR TG, 30 HT TG, 30 HT FR TG or Parafor 50 TG adhered by torch.

Or

Veral Aluminum or Veral Copper adhered in approved mopping asphalt at an application rate of 20-40 lbs./sq. or by torch.

Note: See manufacturer's specifications for specific application requirements.

Surfacing: Optional when granular surfaced membranes are used Required with non-granular surfaced membranes. Install one of the following:

1. 400 lbs./sq. gravel in a flood coat of PA-311 or PA-311 M adhesive at an application rate of 3 gal./sq.
2. 400 lbs./sq. gravel in a flood coat of asphalt applied at a rate of 60 lbs./sq.

Maximum Design Pressure:

-45 psf (See General Limitation #7)



Membrane Type:	SBS/SBS Foil
Deck Type 4I:	Lightweight Concrete, Insulated
Deck Description:	NVS Lightweight Concrete
System Type E(6):	Base sheet mechanically fastened.
Deck Type:	Structural Concrete deck or existing BUR over structural concrete deck. Insulperm insulation panels shall be placed in a minimum 1/8" slurry-coat of NVS Lightweight insulating concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 1" topcoat cast of NVS Lightweight concrete. Allowed to cure for 3 days.
All General and System limitations apply.	
Base Sheet:	One ply of Parabase, Parabase FS or Parabase Plus mechanically fastened as detailed below:
Fastening:	Fasten base sheet with FM 75, NVS Fastener or Olympic CR 1.2" Fasteners on a 3" side lap fastened 7" o.c. on lap and three equally spaced rows 10" o.c. in the field.
Ply Sheet:	Paradiene 20 TG, 20 HV TG, 20 HT TG, or 20 EG TG adhered by torch or Paradiene 20, 20 HT, 20 HV or 20 EG, adhered with approved mopping asphalt at an application rate of 20-40 lbs./sq. or PA 311 at a rate of 1.5-2 gal/sq. Or (For Veral system) IREX 40 or IREX HT adhered in approved mopping asphalt at an application rate of 20-40 lbs./sq. or by torch.
Membrane:	Paradiene 20 PR, 30 FR, 30 CR FR, 30 HT FR, 30 MW FR, 40 FR or Parafor 50 LT adhered with approved mopping asphalt at an application rate of 20-40 lbs./sq. or PA 311/311M adhesive at a rate of 1.5-2 gal/sq. or Paradiene 20 PR TG, 30 FR TG, 30 CR FR TG, 30 HT TG, 30 HT FR TG or Parafor 50 TG adhered by torch. Or Veral Aluminum or Veral Copper adhered in approved mopping asphalt at an application rate of 20-40 lbs./sq. or by torch.
Note:	See manufacturer's specifications for specific application requirements.
Surfacing:	<u>Optional</u> when granular surfaced membranes are used <u>Required with non-granular</u> surfaced membranes. Install one of the following: <ol style="list-style-type: none"> 1. 400 lbs./sq. gravel in a flood coat of PA-311 or PA-311 M adhesive at an application rate of 3 gal./sq. 2. 400 lbs./sq. gravel in a flood coat of asphalt applied at a rate of 60 lbs./sq.
Maximum Design Pressure:	-75 psf (See General Limitation #7)

Membrane Type: SBS/SBS Foil
Deck Type 4I: Lightweight Concrete, Insulated
Deck Description: NVS Lightweight Concrete
System Type E(7): Base sheet mechanically fastened.

Deck Type: Structural Concrete deck or Irex 40 torch adhered over primed structural concrete deck. Insulperm insulation panels shall be placed in a minimum 1/8" slurry-coat of NVS Lightweight insulating concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 1" topcoat cast of NVS Lightweight concrete. Allowed to cure for 3 days.

All General and System limitations apply.

Base Sheet: One ply of Parabase, Parabase FS or Parabase Plus mechanically fastened as detailed below:

Fastening: Fasten base sheet with NVS Fasteners along the 3" side lap fastened 6" o.c. on lap and five equally spaced rows 6" o.c. in the field.

Ply Sheet: Paradiene 20 TG, 20 HV TG, 20 HT TG, 20 TG For 20 EG TG adhered by torch.

Membrane: Paradiene 20 PR TG, 30 FR TG, 30 CR FR TG, 30 HT FR TG or Parafor 50 TG adhered by torch.

Note: See manufacturer's specifications for specific application requirements.

Surfacing: Optional when granular surfaced membranes are used Required with non-granular surfaced membranes. Install one of the following:

1. 400 lbs./sq. gravel in a flood coat of PA-311 or PA-311 M adhesive at an application rate of 3 gal./sq.
2. 400 lbs./sq. gravel in a flood coat of asphalt applied at a rate of 60 lbs./sq.

Maximum Design Pressure: -135 psf (See General Limitation #7)



Membrane Type: SBS/SBS Foil
Deck Type 4I: Lightweight Concrete, Insulated
Deck Description: Cellular Lightweight Concrete
System Type E(8): Base sheet mechanically fastened.

Deck Type: Structural Concrete deck or existing BUR over structural concrete deck. Insulperm insulation panels shall be placed in a minimum 1/8" slurry-coat of Insulcel Cellular Lightweight insulating concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2" topcoat cast of Insulcel Cellular Lightweight concrete. Allowed to cure for 3 days.

All General and System limitations apply.

Base Sheet: One ply of Parabase, Parabase FS or Parabase Plus mechanically fastened as detailed below:

Fastening: Fasten base sheet with Zono-tite 1.75" base sheet Fasteners on a 4" side lap fastened 7" o.c. on lap and three equally spaced rows 10" o.c. in the field.

Ply Sheet: Paradiene 20 TG, 20 TG F, 20 HV TG, 20 HT TG or 20 EG TG adhered by torch or Paradiene 20, 20 HT, 20 HV or 20 EG adhered with approved mopping asphalt at an application rate of 20-40 lbs./sq. or PA 311/311M at a rate of 1.5-2 gal/sq.

Or

(For Veral system) IREX 40 or IREX HT adhered in approved mopping asphalt at an application rate of 20-40 lbs./sq. or by torch.

Membrane: Paradiene 20 PR, 30 FR, 30 CR FR, 30 HT FR, 30 MW FR, 40 FR or Parafor 50 LT adhered with approved mopping asphalt at an application rate of 20-40 lbs./sq. or PA 311/311M adhesive at a rate of 1.5-2 gal/sq. or Paradiene 20 PR TG, 30 CR TG, 30 FR TG, 30 CR FR TG, 30 HT TG, 30 HT FR TG or Parafor 50 TG adhered by torch.

Or

Veral Aluminum or Veral Copper adhered in approved mopping asphalt at an application rate of 20-40 lbs./sq. or by torch

Note: See manufacturer's specifications for specific application requirements.

Surfacing: Optional when granular surfaced membranes are used Required with non-granular surfaced membranes. Install one of the following:

1. 400 lbs./sq. gravel in a flood coat of PA-311 or PA-311 M adhesive at an application rate of 3 gal./sq.
2. 400 lbs./sq. gravel in a flood coat of asphalt applied at a rate of 60 lbs./sq.

Maximum Design Pressure: -82.5 psf (See General Limitation #7)

Membrane Type: SBS/SBS Foil
Deck Type 4I: Lightweight Concrete, Insulated
Deck Description: NVS Lightweight Concrete
System Type E(9): Base sheet mechanically fastened.

Deck Type: Min. 22 ga, vented steel deck attached with 3/8" puddle welds at every corrugation to steel supports spaced a maximum of 6 ft o.c. Deck side laps fastened at 24" o.c. with #10 TEK screws. One layer 5/8" thick DensDeck fastened to deck with Siplast Parafast XHD or Olympic XHD Fasteners with 3" Metal Plates or Tru-Fast HD Fastener with MP-3 Plates at a fastener density of 1:1.6 ft². A two-ply ASTM D 2178 Type IV fully adhered to DensDeck with Siplast PA-100 roofing asphalt. Insulperm insulation panels shall be placed in a minimum 1/8" slurry-coat of NVS Lightweight insulating concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2" topcoat cast of NVS Lightweight Insulating concrete. Allow to cure for 3 days.

All General and System limitations apply.

Base Sheet: One ply of Parabase, Parabase FS or Parabase Plus mechanically fastened as detailed below:

Fastening: Fasten base sheet with FM 75, NVS Fastener or Olympic CR 1.2" Fasteners on a 3" side lap fastened 7" o.c. on lap and three equally spaced rows 10" o.c. in the field.

Ply Sheet: Paradiene 20 TG, 20 TG F, 20 HV TG, 20 HT TG or 20 EG TG adhered by torch or Paradiene 20, 20 HT, 20 HV or 20 EG adhered with approved mopping asphalt at an application rate of 20-40 lbs./sq. or PA 311/311 M at a rate of 1.5-2 gal/sq.
Or
(For Veral system) IREX 40 or IREX HT adhered in approved mopping asphalt at an application rate of 20-40 lbs./sq. or by torch.

Membrane: Paradiene 20 PR, 30 FR, 30 CR FR, 30 HT FR, 30 MW FR, 40 FR or Parafor 50 LT adhered with approved mopping asphalt at an application rate of 20-40 lbs./sq. or PA 311/311M adhesive at a rate of 1.5-2 gal/sq. or Paradiene 20 PR TG, 30 CR TG, 30 FR TG, 30 CR FR TG, 30 HT TG, 30 HT FR TG or Parafor 50 TG adhered by torch.
Or
Veral Aluminum or Veral Copper adhered in approved mopping asphalt at an application rate of 20-40 lbs./sq. or by torch

Note: See manufacturer's specifications for specific application requirements.

Surfacing: Optional when granular surfaced membranes are used Required with non-granular surfaced membranes. Install one of the following:

1. 400 lbs./sq. gravel in a flood coat of PA-311 or PA-311 M adhesive at an application rate of 3 gal./sq.
2. 400 lbs./sq. gravel in a flood coat of asphalt applied at a rate of 60 lbs./sq.

Maximum Design Pressure: -75 psf (See General Limitation #7)



Membrane Type: SBS/SBS Foil
Deck Type 4I: Lightweight Concrete, Insulated
Deck Description: Insulcel Lightweight Concrete
System Type E(10): Base sheet mechanically fastened.

Deck Type: Min. 22 ga, vented steel deck attached with 3/8" puddle welds at every corrugation to steel supports spaced a maximum of 5 ft o.c. Deck side laps fastened at 24" o.c. with #10 TEK screws. One layer 1/2" thick DensDeck fastened to deck with GAFTITE (Drill-Tec) STD 3-1/4" fasteners and 3" dia. plates at a fastener density of 1:1.33 ft². A two-ply ASTM D 2178 Type IV fully adhered to DensDeck with Siplast PA-100 roofing asphalt. Insulperm insulation panels shall be placed in a minimum 1/8" slurry-coat of Insulcel Lightweight insulating concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2" topcoat cast of Insulcel Lightweight insulating concrete. Allow to cure 3 days.

All General and System limitations apply.

Base Sheet: One ply of Parabase, Parabase FS or Parabase Plus mechanically fastened as detailed below:

Fastening: Fasten base sheet with Zono-tite 1.75" base sheet Fasteners on a 4" side lap fastened 7" o.c. on lap and three equally spaced rows 10" o.c. in the field.

Ply Sheet: Paradiene 20 TG, 20 TG F, 20 HV TG, 20 HT TG or 20 EG TG adhered by torch or Paradiene 20, 20 HT, 20 HV or 20 EG adhered with approved mopping asphalt at an application rate of 20-40 lbs./sq. or PA 311 at a rate of 1.5-2 gal/sq.
Or
(For Veral system) IREX 40 or IREX HT adhered in approved mopping asphalt at an application rate of 20-40 lbs./sq. or by torch.

Membrane: Paradiene 20 PR, 30 FR, 30 CR FR, 30 HT FR, 30 MW FR, 40 FR or Parafor 50 LT adhered with approved mopping asphalt at an application rate of 20-40 lbs./sq. or PA 311/311M adhesive at a rate of 1.5-2 gal/sq. or Paradiene 20 PR TG, 30 CR TG, 30 FR TG, 30 CR FR TG, 30 HT TG, 30 HT FR TG or Parafor 50 TG adhered by torch.
Or
Veral Aluminum or Veral Copper adhered in approved mopping asphalt at an application rate of 20-40 lbs./sq. or by torch

Note: See manufacturer's specifications for specific application requirements.

Surfacing:

Optional when granular surfaced membranes are used Required with non-granular surfaced membranes. Install one of the following:

1. 400 lbs./sq. gravel in a flood coat of PA-311 or PA-311 M adhesive at an application rate of 3 gal./sq.
2. 400 lbs./sq. gravel in a flood coat of asphalt applied at a rate of 60 lbs./sq.

**Maximum Design
Pressure:**

-82.5 psf (See General Limitation #7)



Membrane Type:	SBS
Deck Type 4I:	Lightweight Concrete, Insulated
Deck Description:	Hybrid lightweight concrete (Zonocel), cellular lightweight concrete (Insulcel) or aggregate lightweight concrete (ZIC).
System Type E(11):	Base sheet mechanically fastened.
Deck Type:	Min. 22 ga. vented steel decking fastened to structural supports spaced a maximum of 5 ft. o. c. Lightweight concrete consists of min. 1/8" thick slurry coat followed by min. 1" thick Insulperm EPS board (<i>optional</i>) and a min. 2" thick top coat.
Base Sheet:	One ply of Parabase, Parabase FS or Parabase Plus mechanically attached using Zono-tite Fasteners spaced 7" o.c. at the 3" side lap and two staggered rows in the center of the sheet, fastened 7" o.c.
Ply Sheet:	Paradiene 20, 20 HT, 20 HV or 20 EG adhered in full mopping of approved asphalt applied within the EVT range and at a rate of 20-25 lbs./sq or with PA 311/311 M adhesive at a rate of 1.5-2 gal/sq. or Paradiene 20 TG, 20 HV TG, 20 HT TG or 20 EG TG torch applied.
Membrane:	Paradiene 20 PR, 30 FR, 30 CR FR, 30HT FR, 40FR or Parafor 50 LT adhered in full mopping of approved asphalt applied within the EVT range and at a rate of 20-25 lbs./sq or PA 311/311M at a rate of 1.5-2 gal/sq. or Paradiene 20 PR TG, 30 CR TG, 30 HT TG, 30 FR TG, 30 CR FR TG, 30 HT FR TG or Parafor 50 TG torch applied.
Note:	See manufacturer's specifications for specific application requirements.
Surfacing:	<u>Optional</u> when granular surfaced membranes are used <u>Required with non-granular</u> surfaced membranes. Install one of the following: <ol style="list-style-type: none"> 1. 400 lbs./sq. gravel in a flood coat of PA-311 or PA-311 M adhesive at an application rate of 3 gal./sq. 2. 400 lbs./sq. gravel in a flood coat of asphalt applied at a rate of 60 lbs./sq.
Maximum Design Pressure:	-75 psf (See General Limitation #9)

Membrane Type:	SBS Foil
Deck Type 4I:	Lightweight Concrete, Insulated
Deck Description:	Hybrid lightweight concrete (Zonocel), cellular lightweight concrete (Insulcel) or aggregate lightweight concrete (ZIC).
System Type E(12):	Base sheet mechanically fastened.
Deck Type:	Min. 22 ga. vented steel decking. Lightweight concrete consists of min. 1/8" thick slurry coat followed by min. 1" thick Insulperm EPS board (<i>optional</i>) and a min. 2" thick top coat.
Base Sheet:	One ply of Parabase, Parabase FS or Parabase Plus mechanically attached using Zono-tite Fasteners spaced 7" o.c. at the 3" side lap and two staggered rows in the center of the sheet, fastened 7" o.c.
Ply Sheet:	Paradiene 20, 20 HT, 20 HV or 20 EG, IREX HT or IREX 40 adhered in full mopping of approved asphalt applied within the EVT range and at a rate of 20-25 lbs./sq or with PA 311/311 M adhesive at a rate of 1.5-2 gal/sq. or Paradiene 20 TG, 20 HV TG, 20 HT TG, 20 EG TG, IREX 40 or IREX HT adhered by torch.
Membrane:	Veral Aluminum or Veral Copper adhered in full mopping of approved asphalt applied within the EVT range and at a rate of 20-25 lbs./sq. or adhered by torch.
Surfacing:	<p><u>Optional</u> when granular surfaced membranes are used <u>Required with non-granular</u> surfaced membranes. Install one of the following:</p> <ol style="list-style-type: none"> 1. 400 lbs./sq. gravel in a flood coat of PA-311 or PA-311 M adhesive at an application rate of 3 gal./sq. 2. 400 lbs./sq. gravel in a flood coat of asphalt applied at a rate of 60 lbs./sq.
Maximum Design Pressure:	-75 psf (See General Limitation #9)

Membrane Type: SBS/SBS Foil

Deck Type 4I: Lightweight Concrete, Insulated

Deck Description: Cellular or Aggregate Lightweight Concrete

System Type E(13): Base sheet mechanically fastened.

Deck Types: 18-22 ga steel deck shall be secured 6" o.c. to structural supports spaced a maximum of 6 ft on centers with 3/8" puddle welds and washers. Insulperm insulation panels shall be placed in a minimum 1/8" slurry-coat of Insulcel Lightweight insulating concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2" topcoat cast of Insulcel Lightweight insulating concrete.
(Maximum Design Pressure –45 psf; See General Limitation #7)

All General and System limitations apply.

Base Sheet: One ply of Parabase, Parabase FS or Parabase Plus mechanically fastened as detailed below:

Fastening: Fasten base sheet with FM-90, Olympic Base Sheet Fasteners, or Zonotite Fasteners on a 3" side lap fastened 10" o.c. on lap and three equally spaced rows 10" o.c. in the field.

Ply Sheet: Paradiene 20 TG, 20 TG F, 20 HV TG, 20 HT TG or 20 EG TG adhered by torch or Paradiene 20, 20 HT, 20 HV or 20 EG adhered with approved mopping asphalt at an application rate of 20-40 lbs./sq. or with PA 311/311M adhesive at a rate of 1.5-2 gal/sq.
 Or
 (For Veral system) IREX 40 or IREX HT adhered in approved mopping asphalt at an application rate of 20-40 lbs./sq. or by torch.

Membrane: Paradiene 20 PR, 30 FR, 30 CR FR, 30 HT FR, 30 MW FR, 40 FR or Parafor 50 LT adhered with approved mopping asphalt at an application rate of 20-40 lbs./sq. or PA 311/311M adhesive at a rate of 1.5-2 gal/sq. or Paradiene 20 PR TG, 30 FR TG, 30 CR FR TG, 30 HT FR TG or Parafor 50 TG adhered by torch
 Or
 Veral Aluminum or Veral Copper adhered in approved mopping asphalt at an application rate of 20-40 lbs./sq. or by torch

Note: See manufacturer's specifications for specific application requirements.

Surfacing: Optional when granular surfaced membranes are used Required with non-granular surfaced membranes. Install one of the following:

1. 400 lbs./sq. gravel in a flood coat of PA-311 or PA-311 M adhesive at an application rate of 3 gal./sq.
2. 400 lbs./sq. gravel in a flood coat of asphalt applied at a rate of 60 lbs./sq.

Maximum Design Pressure –45 psf (See General Limitation #7)

Membrane Type: SBS/SBS Foil
Deck Type 4I: Lightweight Concrete, Insulated
Deck Description: ZIC Lightweight Concrete Design Mix 1:4 ratio
System Type E(14): Base sheet mechanically fastened.

Deck Type: Min. 22 ga, x 1.5" Deep corrugations, Canam Steel 1.5% vented, G-90 finish steel deck. Steel deck installed over 0.25" (6mm) thick structural supports having 6'-0" o.c. (1.8m) spans. The steel deck welded to the steel supports with 5/8" puddle weld 0.6" o.c. at the perimeter and at each flute in the field side laps fastened with tek screws 12" o.c.

All General and System limitations apply.

Base Sheet: One ply of Parabase, Parabase FS or Parabase Plus mechanically fastened as detailed below:

Fastening: Fasten base sheet with Zonotite base sheet fasteners 7" o.c. on the 3" side laps and three rows evenly spaced in the field at 7" o.c.

Ply Sheet: Paradiene 20, 20 HT, 20 HV or 20 EG adhered with approved mopping asphalt at an application rate of 20-40 lbs./sq. with 3" side laps.
(For Veral system) IREX 40 or IREX HT adhered in approved mopping asphalt at an application rate of 20-40 lbs./sq. or by torch with 3" side laps.

Membrane: Paradiene 30 FR, 30 CR FR, 30 HT FR, 30 MW FR, 40 FR or Parafor 50 LT adhered with approved mopping asphalt at an application rate of 20-40 lbs./sq. with 3" side laps. Or Veral Aluminum or Veral Copper adhered in approved mopping asphalt at an application rate of 20-40 lbs./sq. or by torch with 3" side laps.

Note: See manufacturer's specifications for specific application requirements.

Surfacing: Optional when granular surfaced membranes are used Required with non-granular surfaced membranes. Install one of the following:

1. 400 lbs./sq. gravel in a flood coat of PA-311 or PA-311 M adhesive at an application rate of 3 gal./sq.
2. 400 lbs./sq. gravel in a flood coat of asphalt applied at a rate of 60 lbs./sq.

Maximum Design Pressure: -82.5 psf (See General Limitation #7)



Membrane Type:	SBS
Deck Type 4I:	Lightweight Concrete, Insulated
Deck Description:	ZIC Lightweight Concrete Design Mix 1:4 ratio minimum 2" thickness.
System Type E(15):	Base sheet mechanically fastened.
Deck Type:	Min. 22 ga, x 1.5" Deep corrugations, type B Steel 1.5% vented, G-90 finish steel deck. Steel deck installed over 0.25" (6mm) thick structural supports having maximum 6' o.c. (1.8m) spans. The steel deck fastened Two ITW Buildex Traxx-5 and 3/4" washer in each flute of the metal deck along the joist and 12" o.c. along the side laps with ITW Buildex Traxx-1 self drilling screws.
All General and System limitations apply.	
Base Sheet:	One ply of Paradiene 20 PR mechanically fastened as specified below.
Fastening:	Fasten base sheet with Olympic XHD Screws with Olympic Base Sheet Disc or Parafast XHD Screws with Parafast Base Sheet Disc plates at 12" o.c. in the 4" lap and two staggered rows 12" o.c. in the field of the sheet through the LWC into the steel deck.
Ply Sheet:	Paradiene 20, 20 HT, 20 HV or 20 EG adhered with approved mopping asphalt at an application rate of 20-40 lbs./sq. with 3" side laps or Paradiene 20 TG, 20 FR TG, 20 HT TG, 20 HV TG torch adhered. (For Veral system) IREX 40 or IREX HT adhered in approved mopping asphalt at an application rate of 20-40 lbs./sq. or by torch with 3" side laps.
Membrane:	Paradiene 30 FR, 30 CR FR, 30 HT FR, 30 MW FR, 40 FR or Parafor 50 LT adhered with approved mopping asphalt at an application rate of 20-40 lbs./sq. with 3" side laps or Paradiene 30 FR TG, 30 CR FR TG, 30 HT FR TG or Parafor 50 TG adhered by torch or Veral Aluminum or Veral Copper adhered in approved mopping asphalt at an application rate of 20-40 lbs./sq. or by torch.
Note:	See manufacturer's specifications for specific application requirements.
Surfacing:	<u>Optional</u> when granular surfaced membranes are used <u>Required with non-granular</u> surfaced membranes. Install one of the following: <ol style="list-style-type: none"> 1. 400 lbs./sq. gravel in a flood coat of PA-311 or PA-311 M adhesive at an application rate of 3 gal./sq. 2. 400 lbs./sq. gravel in a flood coat of asphalt applied at a rate of 60 lbs./sq.
Maximum Design Pressure:	-172.5 psf (See General Limitation #7)

Membrane Type:	SBS/SBS Foil
Deck Type 4I:	Lightweight Concrete, Insulated
Deck Description:	Cellular lightweight concrete (Insulcel)
System Type F(1):	Base sheet mechanically fastened.
Deck Type:	Minimum 22 ga. Type steel deck shall be secured 6" o.c. to structural supports spaced a maximum of 5 ft. on centers with 3/8" puddle welds and washers. Insulperm insulation panels shall be placed in a minimum 1/8" slurry-coat of Insulcel Lightweight Insulating concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2" topcoat cast of Insulcel Lightweight insulating concrete. Insulcel RT Surface Treatment pellets are applied a rate of 4 lbs./sq. to the freshly poured lightweight concrete. After three days of curing the lightweight concrete the pellets are melted by torch.
Base Sheet:	Paradiene 20 TS is adhered by torch.
Membrane:	Paradiene 30 FR TG, 30 CR FR TG, 30 HT FR TG, Veral Aluminum, Veral Copper or Parafor 50 TG adhered by torch.
Note:	See manufacturer's specifications for specific application requirements.
Surfacing:	<u>Optional</u> when granular surfaced membranes are used <u>Required with non-granular</u> surfaced membranes. Install one of the following: <ol style="list-style-type: none"> 1. 400 lbs./sq. gravel in a flood coat of PA-311 or PA-311 M adhesive at an application rate of 3 gal./sq. 2. 400 lbs./sq. gravel in a flood coat of asphalt applied at a rate of 60 lbs./sq.
Maximum Design Pressure:	-97.5 psf (See General Limitation #9)

Membrane Type:	SBS/SBS Foil
Deck Type 4I:	Lightweight Concrete, Insulated
Deck Description:	Cellular lightweight concrete (Insulcel)
System Type F(2):	Base sheet mechanically fastened.
Deck Type:	Structural Concrete (min. 2500 psi) deck. Insulperm insulation panels shall be placed in a minimum 1/8" slurry-coat of Insulcel Lightweight Insulating concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2" topcoat cast of Insulcel Lightweight insulating concrete. Insulcel RT Surface Treatment pellets are applied a rate of 4 lbs./sq. to the freshly poured lightweight concrete. After three days of curing the lightweight concrete the pellets are melted by torch.
Base Sheet:	Paradiene 20 TS is adhered by torch.
Membrane:	Paradiene 30 FR TG, 30 CR FR TG, 30 HT FR TG, Veral Aluminum, Veral Copper or Parafor 50 TG adhered by torch.
Note:	See manufacturer's specifications for specific application requirements.
Surfacing:	<u>Optional</u> when granular surfaced membranes are used <u>Required with non-granular</u> surfaced membranes. Install one of the following: <ol style="list-style-type: none"> 1. 400 lbs./sq. gravel in a flood coat of PA-311 or PA-311 M adhesive at an application rate of 3 gal./sq. 2. 400 lbs./sq. gravel in a flood coat of asphalt applied at a rate of 60 lbs./sq.
Maximum Design Pressure:	-97.5 psf (See General Limitation #9)

Membrane Type:	SBS/SBS Foil
Deck Type 4I:	Lightweight Concrete, Insulated
Deck Description:	Cellular lightweight concrete (Insulcel)
System Type F(3):	Base sheet mechanically fastened.
Deck Type:	Structural Concrete (min. 2500 psi) deck. Irex 40 torch adhered to primed concrete deck (optional). Insulperm insulation panels shall be placed in a minimum 1/8" slurry-coat of Insulcel Lightweight Insulating concrete and allowed to cure overnight. The following day the rigid insulation shall be covered with a minimum 2" topcoat cast of Insulcel Lightweight insulating concrete. Insulcel RT Surface Treatment pellets are applied a rate of 4 lbs./sq. to the freshly poured lightweight concrete. After three days of curing the lightweight concrete pellets are melted by torch.
Base Sheet:	Paradiene 20 TS is adhered by torch.
Ply Sheet: (Optional)	Paradiene 20, 20 HT, 20 HV, 20EG, 20 PR or 20 HT fully bonded to Paradiene 20 TS with PA-311 or Paradiene 20 TG, 20 HV TG, 20 EG TG, 20 PR TG, 20 HT TG or 20 TG F fully bonded to Paradiene 20 TS by torch (option 3) Paradiene 20 TG F or Paradiene 20 HT TG F fully bonded by torch when used with a torch cap.
Membrane:	Paradiene 30 FR, 30 FR CR, 30 HT FR, Paradiene 40 CR FR, 40 FR , 40 FR Eco-Activ, Paradiene 30 MW FR or Parafor 50 LT fully bonded in PA-311 adhesive at a rate of 1.5 gal/100 ft ² . Paradiene 30 FR TG, 30 CR FR TG, 30 HT CR FR TG, 30 FR TG Eco-Activ, Paradiene 40 CR FR TG, Paradiene 40 FR TG, Paradiene 40 FR TG Eco-Activ or Parafor 50 TG fully bonded by torch.
Note:	See manufacturer's specifications for specific application requirements.
Surfacing:	<u>Optional</u> when granular surfaced membranes are used <u>Required with non-granular</u> surfaced membranes. Install one of the following: <ol style="list-style-type: none"> 1. 400 lbs./sq. gravel in a flood coat of PA-311 or PA-311 M adhesive at an application rate of 3 gal./sq. 2. 400 lbs./sq. gravel in a flood coat of asphalt applied at a rate of 60 lbs./sq.
Maximum Design Pressure:	-317.5 psf (See General Limitation #9)

LIGHTWEIGHT INSULATING CONCRETE SYSTEM LIMITATIONS:

1. If mechanical attachment to the structural deck through the lightweight insulating concrete is proposed, a field withdrawal resistance testing shall be performed to determine equivalent or enhanced fastener patterns and density. All testing and fastening design shall be in compliance with Testing Application Standard TAS 105 and Roofing Application Standard RAS 137, calculations shall be signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant.
2. For steel deck application where specific deck construction is not referenced: The deck shall be a minimum 22 gage attached with 5/8" puddle welds with weld washers at every flute with maximum deck spans of 5 ft. o.c.
3. For Systems where specific lightweight insulating concrete is referenced consult current lightweight insulating concrete NOA for specific deck construction and limitations. For systems where specific lightweight insulating concrete is not referenced, the minimum design mix shall be a minimum of 300 psi.

GENERAL LIMITATIONS:

1. Fire classification is not part of this acceptance, refer to a current Approved Roofing Materials Directory for fire ratings of this product.
2. Insulation may be installed in multiple layers. The first layer shall be attached in compliance with Product Control Approval guidelines. All other layers shall be adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq., or mechanically attached using the fastening pattern of the top layer
3. All standard panel sizes are acceptable for mechanical attachment. When applied in approved asphalt, panel size shall be 4' x 4' maximum.
4. An overlay and/or recovery board insulation panel is required on all applications over closed cell foam insulations when the base sheet is fully mopped. If no recovery board is used the base sheet shall be applied using spot mopping with approved asphalt, 12" diameter circles, 24" o.c.; or strip mopped 8" ribbons in three rows, one at each side lap and one down the center of the sheet allowing a continuous area of ventilation. Encircling of the strips is not acceptable. A 6" break shall be placed every 12' in each ribbon to allow cross ventilation. Asphalt application of either system shall be at a minimum rate of 12 lbs./sq. **Note: Spot attached systems shall be limited to a maximum design pressure of -45 psf.**
5. Fastener spacing for insulation attachment is based on a Minimum Characteristic Force (F') value of 275 lbf., as tested in compliance with Testing Application Standard TAS 105. If the fastener value, as field-tested, are below 275 lbf. insulation attachment shall not be acceptable.
6. Fastener spacing for mechanical attachment of anchor/base sheet or membrane attachment is based on a minimum fastener resistance value in conjunction with the maximum design value listed within a specific system. Should the fastener resistance be less than that required, as determined by the Building Official, a revised fastener spacing, prepared, signed and sealed by a Florida Registered Engineer, Architect, or Registered Roof Consultant may be submitted. Said revised fastener spacing shall utilize the withdrawal resistance value taken from Testing Application Standards TAS 105 and calculations in compliance with Roofing Application Standard RAS 117.
7. Perimeter and corner areas shall comply with the enhanced uplift pressure requirements of these areas. Fastener densities shall be increased for both insulation and base sheet as calculated in compliance with Roofing Application Standard RAS 117. Calculations prepared, signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant
(When this limitation is specifically referred within this NOA, General Limitation #9 will not be applicable.)
8. All attachment and sizing of perimeter nailers, metal profile, and/or flashing termination designs shall conform to Roofing Application Standard RAS 111 and applicable wind load requirements.
9. The maximum designed pressure limitation listed shall be applicable to all roof pressure zones (i.e. field, perimeters, and corners). Neither rational analysis, nor extrapolation shall be permitted for enhanced fastening at enhanced pressure zones (i.e. perimeters, extended corners and corners).
(When this limitation is specifically referred within this NOA, General Limitation #7 will not be applicable.)
10. All products listed herein shall have a quality assurance audit in accordance with the Florida Building Code and Rule 61G20-3 of the Florida Administrative Code.

END OF THIS ACCEPTANCE